#19. $\text{Revenue}_{\text{original}} = (\text{prix})(\#\text{ vendus})$

$= (360\$)(280)$

$= 100\,800\$$

Soit $x = \#$ d'augmentation de $\$/10$

Revenue $= (\text{prix})(\#\text{ vendus})$

$R(x) = (360 + 10x)(280 - 5x)$

$R(x) = -50x^2 + 1000x + 100\,800$

fonction quadratique ... le sommet donne (x, R)

de fois d'augmentation de 10$

revenu maximal

$x = \frac{-b}{2a}$

$= \frac{-1000}{2(-50)}$

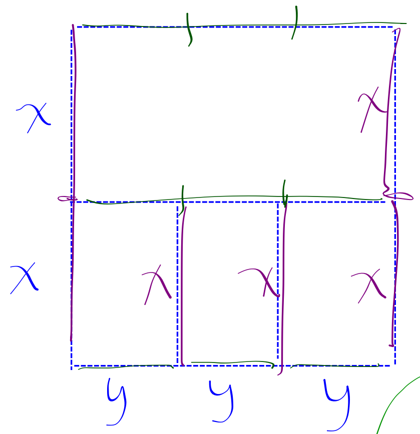
$\boxed{x_{max} = 10}$

$R(x_{max}) = -50(10)^2 + 1000(10) + 100\,800$

$= 105\,800\$$

∴ canonique

↳ $R(x) = -50(x-10)^2 + \boxed{105\,800}$



$\boxed{P = 900\ m}$

$900 = 6x + 9y$

$\frac{900}{9} - \frac{6x}{9} = \frac{9y}{9}$

$\boxed{100 - \frac{2}{3}x} = y$

$A = (2x)(3y)$

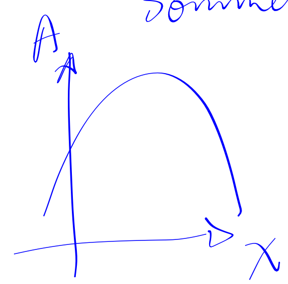
$A = 2x\left[3\left(100 - \frac{2}{3}x\right)\right]$

$= 2x(300 - 2x)$

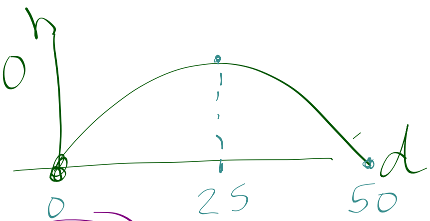
$A(x) = 600x - 4x^2$

$= -4x^2 + 600x \Rightarrow$ canonique

$A(x) \Rightarrow$ Sommet



$h(d) = -0,032d^2 + 1,6d + 0$



↳ canonique

$x = \frac{-b}{2a} = \frac{-1,6}{2(-0,032)} = 25$ p

$h(25) = -0,032(25)^2 + 1,6(25)$

$h_{max} = 20$ q

$h(d) = -0,032(d-25)^2 + 20$

c) domaine : $\{d \in \mathbb{R} \mid 0 \leq d \leq 50\}$

image : $\{h \in \mathbb{R} \mid 0 \leq h \leq 20\}$